June 20, 2018

FILED ELECTRONICALLY VIA ECFS

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: *Ex Parte* filing, IB Docket No. 16-408

Dear Ms. Dortch:

Telesat Canada (Telesat) and WorldVu Satellites Limited d/b/a OneWeb (OneWeb) respond to the letter of 14 May 2018 filed by Viasat, Inc. (Viasat) in this proceeding.[1]

In its letter, Viasat purports to rebut the requirement for system operators to calculate ΔT/T in real-time for purposes of the band-splitting rule established by the Commission in the *NGSO Order*.[2] Specifically, Viasat claims that "[a]lthough it may be difficult for operators to exchange certain types of information in real-time, this is irrelevant."[3]

Viasat clearly misunderstands the fundamental distinction between the data required to use ΔT/T as a coordination trigger—as Telesat and OneWeb have

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[1] *See* letter from John P. Janka, Counsel to Viasat to Marlene H. Dortch, Secretary, FCC, IB Docket No. 16-408 (May 14, 2018) (*Viasat Letter*).

[2] See *Update to Parts 2 and 25 Concerning Non-Geostationary Fixed-Satellite Service Systems and Related Matters*, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 7809 (2017) (*NGSO Order*) at ¶14.

[3] Attachment to *Viasat Letter* at page 1.

proposed—and the real-time data required to implement the Commission's band-splitting rule.[4] Reference data, including the data in the various ITU and FCC filings identified by Viasat, can be used by satellite operators to determine when one satellite system *may* cause interference to another satellite system and hence when good faith coordination discussions are required or "triggered." This is a "worst case," static determination that can be made using submitted reference data.[5] Operators can also use reference data during coordination based on ITU procedures, for purposes of assessing and agreeing to adjustments that are *not* dependent on having detailed operational information in real-time.

In contrast, the Commission's band splitting rule applies when there is *no* prior agreement on coordination and mandates *real-time* determination and resolution of interference.[6] The rule is operative "should coordination remain ongoing at the time both systems are operating, or if good faith coordination proves unsuccessful," and the rule is intended to be "a flexible mechanism *that is specific to the particular interference situation and systems involved*"—not a static measure of aggregate or worst case interference.[7]

For example, in the case of downlink interference, real-time values for the following data items are necessary to calculate ΔT/T at the wanted earth station for purposes of the band splitting rule:

a) Interfering and wanted satellite ephemeris data
b) Interfering satellite power / power density (which can vary dynamically for the type of service offered)

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[4] See discussion of use of ΔT/T as a coordination trigger in Petition for Reconsideration of WorldVu Satellites Limited, IB Docket No. 16-408 (filed January 17, 2018) (*OneWeb Petition*) and the Comments of Telesat Canada on the OneWeb Petition (filed February 20, 2018).

[5] The appropriate specification of a coordination trigger based on ΔT/T is set out in the Comments of Telesat Canada on the *OneWeb Petition* (February 20, 2018), Section IV at pp. 4-5. If using such worst case ΔT/T calculations shows that a system does not exceed the coordination trigger with another system, then that system should no longer be required to coordinate with the other system.

[6] The rule states: "*absent coordination between two systems*, whenever the increase in system noise temperature of a satellite receiver, or earth station receiver for a satellite with on-board processing, of either system, ΔT/T, exceeds 6 percent due to emissions originating in the other system in a commonly authorized frequency band, such frequency band will be divided among the affected satellite networks …" (CFR §25.261)

[7] *NGSO Order* at ¶49.

c) Interfering satellite beam pointing (which depends on earth station location)
d) Interfering satellite antenna pattern (which can vary significantly depending on actual beam pointing)
e) Wanted earth station location
f) Wanted earth station type (including system noise temperature and antenna pattern)
g) Wanted earth station beam pointing (satellite selection algorithm)

The above-listed operating parameters are changing continuously as the satellites move in their orbits and the traffic loading of the systems and earth station locations change.[8] Determination of these time-varying parameters is dependent on the instantaneous traffic loading of the system, and the individual links to its associated earth stations; the reference data cited by Viasat do not address this.[9] Similar time-varying parameters apply to the uplink interference case.[10]

With the exception of the interfering and wanted satellite ephemeris data, which Telesat and OneWeb have recognized will be shared between operators, the "sources" identified by Viasat for the data inputs to calculation of ΔT/T contain filed reference data, not real-time data "that is specific to a particular interference situation." Accordingly, the "sources" Viasat cites do not assist with implementation of the band-splitting rule.

Viasat has failed to identify any reason why grant of the OneWeb Petition is not in the public interest. Viasat's analysis simply confirms that ΔT/T can be used as a trigger for good faith coordination—consistent with the positions Telesat and OneWeb have expressed in this proceeding. Viasat's analysis provides no new insight into the feasibility of determining ΔT/T in real-time, as required by the band-splitting rule.

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[8] Consider, for example, the situation of an NGSO system that uses instantaneously steerable beams to direct the satellite resources towards its corresponding earth stations. Knowing exactly where these beams are pointed at every instant in time, and exactly what frequency range is being used by those beams, is essential data to calculation of real-time ΔT/T.

[9] As Viasat should also be aware, Schedule B information does not identify the location of user terminals.

[10] See letter from Henry Goldberg, counsel for Telesat, to Mr. Jose Albuquerque, Chief, Satellite Division, FCC, IB Docket No. 16-408 (April 10, 2018), White Paper on Delta T/T (ΔT/T) at pages 3-4, for a listing of the data items necessary for the uplink calculation of ΔT/T.

As Telesat and OneWeb have previously demonstrated, exchange of the data inputs required to calculate ΔT/T in real-time is unworkable and, even if this were possible, the information would be commercially and customer-sensitive.[11] Therefore, Telesat and OneWeb respectfully reiterate their request that the Commission grant the OneWeb Petition.

Respectfully submitted,

/s/
Henry Goldberg
Attorney for Telesat Canada

/s/
Brian Weimer
Counsel for OneWeb

[11] *Id* at page 3.